UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,502	08/21/2006	Paul Nicholls	101.0057	6663

50258 7590 10/27/2010

SCHLUMBERGER TECHNOLOGY CORPORATION
14910 AIRLINE ROAD
ROSHARON, TX 77583

EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	PAPER NUMBER
2855	

MAIL DATE	DELIVERY MODE
10/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,502	NICHOLLS ET AL.	
	Examiner	Art Unit	
	Gail Verbitsky	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-16,18 and 20-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-16,18 and 20-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In view of the arguments presented by Applicant in the Appeal Brief filed on 08/07/10, PROSECUTION IS HEREBY REOPENED.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) File a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal (U.S. 4440509) in view of Hartog et al. (U.S. 5821861) [hereinafter Hartog], view of DeBruin (U.S. 20080312406), Chuang and Gamson.

Agrawal discloses in Fig. 4 a device comprising a reaction vessel (catalyst reaction vessel or other reaction vessels) wherein the vessel includes a body (wall/ skin) and the temperature profile of the body/ vessel is measured by a plurality of temperature sensors located on the outside surface of a vessel having a body (skin/ wall) in order to produce a final control signal for the vessel.

Agrawal does not explicitly teach that the temperature profile could be measured by an optical fiber, does not explicitly teach a control unit that automatically controls parameters in the body depending on the temperature profile to ensure that the process is within an acceptable range.

Agrawal does not explicitly teach that the vessel comprising a tray, an outlet weir, and a downcomer positioned within the body, and a conduit where the optical fiber is positioned.

DeBruin states that some reactors, especially catalyst or ester exchange reactors, distillation columns (separates liquid for subsequent processing) have such internals as weirs, trays, downcomers, and also need temperature control, and thus knowledge of temperature inside the reactor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Agrawal so as to obtain temperature measuring of the vessel having weirs, trays, downcomers, because these vessels also need to have their temperature assessed and controlled.

Hartog discloses in Figs. 1-3 a device/ method in the field of applicant's endeavor and teaches that the temperature profile of the reactor vessel wall (thus, it is considered, that the internal temperature of the vessel which is known to heat the wall is also detected) could be the optical fiber is installed in a pipe/conduit. Installation of the optical fiber could be performed by directing jets of fluid (fluid drag) (col. 1, lines 59-67). Hartog teaches that the conduit with the fiberoptic could be positioned either outside the

wall or inside the wall by means of a fluid drag. The conduit is made of a metal sheet in combination with a stainless steel sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Agrawal, so as to replace the temperature sensors measuring the temperature profile of the wall of the vessel (and thus the content of the vessel) with the optical fiber positioned in a metal conduit, as taught by Hartog, because both of them, the temperature sensing devices of Agrawal and the optical fiber of Hartog are alternate types of temperature measuring devices which will sense the temperature of the wall of the vessel and thus, the temperature of the content of the vessel heating the wall, if one is replaced with another.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, so as to install the fiber optic in the pipe/ conduit by using fluid drag, as taught by Hartog, in order to protect the fiber optic from damage due to friction during insertion.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, so as to embed the conduit with the fiberoptic within the wall, as taught by Hartog, in order to minimize its protrusion from the wall and thus, protect it from a physical damage.

Chuang discloses a device wherein a reactor vessel is a part of a distillation column/ system (having stages) and the temperature and pressure of the vessel is controlled by valves and automatic controllers in order to control the process parameters and to keep them within acceptable range. This would suggest means/ step of measuring the temperature of the vessel first. The device is concerned with separating of the components.

With respect to the particular distillation vessel, i.e., having inlet, etc., and also separating liquid components: Although Chuang does not explicitly describe the particular features of the distillation vessel, Gamson, who describes a conventional distillation vessel states that it has a liquid inlet, a vapor outlet, and a process comprising a vapor/ liquid separation stage, known in the standard practice, and

inherently, directed to separating liquid components and controlling parameter, and having a plurality of valves. Gamson describes a normal (known in the art) vaporization process in a distillation unit/ vessel, the vessel having a temperature sensor having a vapor outlet and a liquid inlet/ one end/ another end (with valve), wherein the vapor is removed by the process by means of the outlet and valve 44 to discharge an access of the vapor. Gamson teaches that the distillation process normally comprising a vapor/liquid separation phase. Please note, the particular positioning of the inlet/ outlet, is absent any criticality because it was held that there would be no invention in shifting the inlet/ outlet disclosed by the Prior Art to a different position depending what process is being performed in the distillation system, since the operation of the device would not thereby be modified. See In re Japikse, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device/ method, disclosed by Agrawal, so as to obtain the temperature profile of the vessel which is a part of the (conventional) distillation system for separating fluid so as to control the parameters (temperature and pressure) of such a vessel and the process, because the parameters of the process should be held within acceptable limits, as it is very well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Agrawal, so as to have an automatic control (valve) unit to automatically control temperature of the vessel and thus the processes within the vessel, in order to ensure the proper process, as suggested by Ghuang, and very well known in the art.

Claims 18, 20-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal (U.S. 4440509) in view of Hartog, Ghuang and Gamson.

Agrawal discloses in Fig. 4 a device comprising a reaction vessel (catalyst or other) wherein its temperature profile is measured by a plurality of temperature sensors located on the outside surface of a vessel having a body (skin/ wall) in order to produce a final control signal for the vessel.

Agrawal does not explicitly teach that the temperature profile could be measured by an optical fiber, does not explicitly teach a control unit that automatically controls parameters in the body depending on the temperature profile to ensure that the process is within an acceptable range. Agarwal does not explicitly teach a plurality of valves for an automatic control.

Hartog discloses in Figs. 1-3 a device/ method in the field of applicant's endeavor and teaches that the temperature profile of the reactor vessel wall (thus, it is considered, that the internal temperature of the vessel which is known to heat the wall is also detected) could be the optical fiber is installed in a pipe/conduit. Installation of the optical fiber could be performed by directing jets of fluid (fluid drag) (col. 1, lines 59-67). Hartog teaches that the conduit with the fiberoptic could be positioned either outside the wall or inside the wall by means of a fluid drag. The conduit is made of a metal sheet in combination with a stainless steel sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Agrawal, so as to replace the temperature sensors measuring the temperature profile of the wall of the vessel (and thus the content of the vessel) with the optical fiber positioned in a metal conduit, as taught by Hartog, because both of them, the temperature sensing devices of Agrawal and the optical fiber of Hartog are alternate types of temperature measuring devices which will sense the temperature of the wall of the vessel and thus, the temperature of the content of the vessel heating the wall, if one is replaced with another.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, so as to install the fiberoptic in the pipe/

conduit by using fluid drag, as taught by Hartog, in order to protect the fiber optic from damage due to friction during insertion.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, so as to embed the conduit with the fiberoptic within the wall, as taught by Hartog, in order to minimize its protrusion from the wall and thus, protect it from a physical damage.

Chuang discloses a device wherein a reactor vessel is a part of a distillation column/ system (having stages) and the temperature and pressure of the vessel is controlled by valves and automatic controllers in order to control the process parameters and to keep them within acceptable range. This would suggest means/ step of measuring the temperature of the vessel first. The device is concerned with separating of the components.

With respect to the particular distillation vessel, i.e., having inlet, etc., and also separating liquid components: Although Chuang does not explicitly describe the particular features of the distillation vessel, Gamson, who describes a conventional distillation vessel states that it has a liquid inlet, a vapor outlet, and a process comprising a vapor/ liquid separation stage, known in the standard practice, and inherently, directed to separating liquid components and controlling parameter, and having a plurality of valves. Gamson describes a normal (known in the art) vaporization process in a distillation unit/ vessel, the vessel having a temperature sensor having a vapor outlet and a liquid inlet/ one end/ another end (with valve), wherein the vapor is removed by the process by means of the outlet and valve 44 to discharge an access of the vapor. Gamson teaches that the distillation process normally comprising a vapor/liquid separation phase. Please note, the particular positioning of the inlet/ outlet,

is absent any criticality because it was held that there would be no invention in shifting the inlet/ outlet disclosed by the Prior Art to a different position depending what process is being performed in the distillation system, since the operation of the device would not thereby be modified. See In re Japikse, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device/ method, disclosed by Agrawal, so as to obtain the temperature profile of the vessel which is part of the distillation system/ column for separating fluid so as to control the parameters of such a vessel and the process, because the parameters of the process should be within acceptable limits, as it is very well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Agrawal, so as to have an automatic control (valve) unit to automatically control temperature of the vessel and thus the processes within the vessel, in order to ensure the proper process, as suggested by Ham, and very well known in the art.

The method steps will be met during the normal operation of the device stated above.

Response to Arguments

Applicant's arguments with respect to claims 1-7, 9-16, 18-31 have been considered. The prosecution is now reopened; therefore, the previous rejections are now moot in view of the new ground(s) of rejection.

Applicant argues that Iida teaches to measure temperature of the skin of the vessel, and that the temperature of the skin is controlled but not the temperature/ parameters of the processes within the vessel.

Although the Examiner's position is that the skin temperature of the vessel is indicative of the temperature of the inside of the vessel and thus, by controlling the skin temperature, the inside temperature is being somehow controlled, the Examiner removed Iida from the rejections, the rejection is now moot, please see the rejections above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Ham discloses a chemical process apparatus and method and teaches that the process should be automatically controlled to a desired temperature (col. 4, lines 5-9).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lisa Caputo can be reached on 571/ 272-2388. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gail Verbitsky
Primary Patent Examiner, TC 2800

October 15, 2010
/Gail Verbitsky/
Primary Examiner, Art Unit 2855

/Lisa M. Caputo/
Supervisory Patent Examiner, Art Unit 2855